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EXAMINER

MOTSINGER, SEANT

ART UNIT

PAPER NUMBER

2624

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/672,707

Applicant(s)

VAN HOOK ET AL.

Examiner

SEAN MOTSINGER

Art Unit

2624

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/26/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-61 and 63-94 is/are pending in the application.
- 4a) Of the above claim(s) 14-33, 36-54 and 69-88 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-13, 34, 35, 55-61, 63-65, 67, 68 and 89-94 is/are rejected.
- 7) ☐ Claim(s) 11 and 66 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Applicants Arguments/Amendments

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/17/2008 has been entered.

Applicants arguments with respect to the rejections under 35 U.S.C. 102 have been fully considered but are not persuasive. Applicants argues that Molnar does not disclose wherein partial compression comprises employing at least two color designations for a same time to compress data for the tile. However the examiner disagrees, this feature can be found in column 9 lines 50-55.

Rejections Under 35 U.S.C. 101

Claim(s) 1-6, 8-13, 89 and 91 is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory "process" under 35 U.S.C. 101 must

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

(1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Rejections Under 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A person shall be entitled to a patent unless –
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-6, 12-13, 34-35, 55-58, 60-62, and 67-68 are rejected under 35 U.S.C. 102(e) as being anticipated by Molnar et al US 6,825,847.

Re claim 1 Molnar further discloses A method of data compression comprising:
grouping a plurality of pixel data into a plurality of tiles (column 2 lines 10-15);
evaluating said tiles for compression suitability (capable of being compressed column 2

lines 1-5), wherein said compression recognizes duplicate data (identical data column 2 lines 25-30) and reduces (reduction column 2 lines 25-30) amount of duplicate data stored within said tiles; compressing said tiles if said tiles are deemed suitable for said compression (column 2 lines 5-10) wherein said step of evaluating further comprises: determining whether a tile is suitable for partial compression (reduction alone note a reduced uncompacted tile can be stored column 7 lines 45-55 column 8 lines 5-10); designating said tile for partial compression if it is deemed to be suitable (reduction column 7 lines 45-55), wherein partial compression comprises employing at least two color designations for a same time to compress data for tile (column 9 lines 45-50 note that in a reduced, uncompacted tile has more then one color per tile).

Re claim 2 Molnar further discloses wherein said pixel data is color information (column 2 lines 25-30)

Re claim 3 Molnar further discloses wherein said step of evaluating further comprises: determining whether a tile is suitable for full compression (reduction and compaction column 7 lines 60-67) designating said tile for full compression if it is deemed to be suitable (reduced and compacted column 80 lines 1-10)

Re claim 5 Molnar further discloses wherein said step of compressing further comprises: storing a single color entry for each pixel in said tile (column 10 lines 2-35)

note a single color value is stored for each pixel also see column 7 lines 20-30 note a reduced tile is one where all pixels have one color each).

Re claim 6 Molnar further discloses wherein said full compression compresses said pixel data into one word per pixel (see column 9 lines 45-60 note 128 bits per 8 pixels is 1, 16 bit word per pixel.)

Re claim 12 Molnar further discloses wherein said partial compression compresses said pixel data into two words per pixel (column 9 lines 20-35, 256 bits per 8 pixels is 2, 16 bit word per pixel).

Re claim 13 Molnar further discloses wherein said tiles are 2.times.2 in size (see figure 3 note one of the tiles to chose from is 2x2 also see figure 15 note both size tiles can be used for the same invention).

Re claims 56-58, 60-61, and 67-68 These claims are substantially the same as claims 1-3, 5-6, and 12-13 respectively only they are directed to a computer readable medium storing a program for performing these methods, Molnar also discloses performing his method on a computer with software see figure 1 and column 4 lines 35-45.

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Re claims 34, 35 and 55, these claims are similar to claims 1, 2 and 13 respectively only they claim a graphics processing apparatus for performing these methods. Molnar also discloses with a graphics processing apparatus see figure 1 and column 4 lines 35-45.

Claims 1-5, 8-10, 13, 34-35, 55 89, 91 and 94 are rejected under 35 U.S.C. 102(b) as being anticipated by Jouppi et al US 6,128,000.

Re claim 1 Jouppi discloses a method of data compression comprising: grouping a plurality of pixel data into a plurality of tiles (each of the plurality of pixels could be considered its own tile or a group of pixels (tile) could share a particular pixel memory column 6 lines 1-10); evaluating said tiles for compression suitability (dynamically allocate memory column 6 lines 15-20 note memory for "fragment triples" is dynamically allocated based on how many fragments cover the pixel (or group of pixels)), wherein said compression recognizes duplicate data (column 5 lines 15-20) and reduces amount of duplicate data stored within said tiles (column 5 lines 15-20); compressing said tiles if said tiles are deemed suitable for said compression (dynamically allocate memory column 6 lines 15-20 note if 4 fragment triples are stored for each pixel which does not compressed in relation to sparse sub sampling column 8 lines 35-38 if less are needed memory is saved) wherein said evaluation comprises determining whether a tile is suitable for partial compression; and designating said tile for partial compression if it is deemed to be suitable (dynamically allocate memory column 6 lines 15-20 partial compression read to be 2 fragment triples being dynamically allocated) and wherein

partial compression comprises employing at least two color designations for a same tile to compress the data (column 5 lines 45-55 note each fragment triple stores a color designation column 5 lines 45-50).

Re claim 2 Jouppi discloses wherein said pixel data is color information (column 5 lines 40-50)

Re claim 3 Jouppi discloses determining whether a tile is suitable for full compression; designating said tile for full compression if it is deemed to be suitable (dynamically allocate memory column 6 lines 15-20 full compression read to be 1 fragment triple being dynamically allocated).

Re claim 4 Jouppi discloses determining whether said tile is wholly covered by a triangle primitive (column 3 lines 60-67, column 4 lines 1-10 note pixel (or tile) will have one fragment if it is wholly covered by a triangle primitive).

Re claim 5 Jouppi discloses wherein said step of compressing further comprises: storing a single color entry for each pixel in said tile (dynamically allocate memory column 6 lines 15-20 note if only one fragment is visible in the pixel, only one fragment will be stored).

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Re claim 8 Jouppi discloses wherein said step of determining further comprises: determining whether said tile is covered by less than two triangle primitives (column 3 lines 60-67, column 4 lines 1-10 note pixel (or tile) will have two fragments if it is wholly covered by a triangle primitive).

Re claim 9 Jouppi discloses wherein said step of compressing further comprises: assigning an order to triangle primitives covering said tile (figure 6 fragment triples (corresponding to a fragment) are represented by 0 or 1); determining the color type of each sample of said tile (fragment triple columns 6 lies 25-40); creating a compressed format of color entries out of said pixel data (fragment triple columns 6 lies 25-40);; creating a pointer to said compressed format (column 6 lines 35-55).

Re claim 10 Jouppi discloses wherein said pointer comprises a bit encoding associated with each sample in said tile, wherein each bit represents an index to entries in said compressed format column 6 lines 50-65).

Re claim 13 Jouppi discloses wherein said tiles are 2.times.2 in size (column 6 lines 1-5).

Re claim 94 Jouppi discloses wherein partial compression comprises employing pointers to designation samples that correspond to an original color designation and a replacement color designation (column 6 lines 50-65 also see figure 4).

Re claims 34, 35 and 55, these claims are similar to claims 1, 2 and 13 respectively only they claim a graphics processing apparatus for performing these methods. Jouppi also discloses with a graphics processing apparatus see figure 1.

Re claim 89 and 91 these claims substantially correspond to claims correspond to claims 4 and 8 respectively and are likewise rejected

Rejections Under 35 U.S.C. 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 12, 55-61, 63-65, 67-68, 90 and 92 are rejected under 35 U.S.C. 103(a) as being rendered obvious by Jouppi et al in view of Molnar.

Re claims 56-60, 63-65, 68, 90 and 92 These claims are substantially the same as claims 1-6, 8-10, 13, 89 and 91 respectively only they are directed to a computer readable medium storing a program for performing these methods. Jouppi does not expressly discuss a computer readable medium. Molnar discloses performing his

method on a computer with software see figure 1 and column 4 lines 35-45. embodying a computer readable medium to perform the compression method of Jouppi as done Molnar is within the ordinary skill of the art and the result would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 6 Jouppi discloses all of the elements of claim 3 and wherein said full compression compresses said pixel data into one color values per pixel (see claim 5). Joppi's color values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use one 32 bit word per color value (with one color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 61 Jouppi discloses all of the elements of claim 58 and wherein said full compression compresses said pixel data into one color values per pixel (see claim 60).. Joppi's color values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use one 32 bit word per color value (with one color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 12 Jouppi discloses all of the elements of claim 1 and wherein said partial compression compresses said pixel data into two color values per pixel. Joppis color

values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use one 32 bit word per color value (with two color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Re claim 67 Jouppi discloses all of the elements of claim 56 and wherein said partial compression compresses said pixel data into two color values per pixel. Joppi's color values are 5 bytes see column 5 lines 45-50. Joppie could easily implemented to use one 32 bit word per color value (with two color values per pixel) as in Molnar 9 lines 50-55, and the results (32 bits per color) would be predictable. Therefore it would have been obvious to combine Jouppi and Molnar

Allowable Subject Matter

Claims 11 and 66 are objected to as being dependent from a rejected base claim but would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims and and rejections under 35 U.S.C. 101 are overcome. Claims 11 and 66 contain the subject matter wherein said pointer comprises a bit encoding associated with each sample in said tile, wherein each bit represents an index to entries in said compressed format. Which is not found in the prior art of record, therefore these claims contain allowable subject matter

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEAN MOTSINGER whose telephone number is (571)270-1237. The examiner can normally be reached on 9-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571)272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Motsinger
1/4/2008

***/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624***